Host

Interface ~ 116

Drive

Power ~ 144

data read/write ~ 112

Arm Control

Radia ~ 118

132 134

optical head

Hub ~ 122

158 128

Am ~ 142

Motor ~ 124

Motor Control

126

Fig 1

618 714

912

334

832

914

Fig 9

214

212

118

222

234

232

224

218

128

142

Fig 2

224

216

312

318

322

314

328

316

324

378

326

334

Fig 3

328

314

312

322

414

334

Fig 4

4.50

0.75

322

314

314

328

332

318

324

334

334

338

0.40

2.50

2.90

514

0.75

5
512

6

Fig 5

362

Disk (0.60mm thick)

312

314

314

324

364

358

356

318

352qb

332

55

326

332

33

616

334

616

614

612

338

336

Fig 6

Fig. 8

Fig. 7

Fig 10

Fig. 13

1314c

1312b

1314c

1316c

1316b
1314b

1316a
1314a

1313

1312a

125

242

142

244

Fig. 11

Fig. 12

1216

312

316

326

334

356

332

1212

1218

1214

218

338

226

142

1442 -1424 312

1446 1434 40mm

1426 1432 1438

1446 326' Fig 14

1444

1428

1448

1412

317

318

326

Fig. 15

1512   356   612   1514

312

318

326

Fig 16

357   612   1614

1722

Optics

Reflective beam discriminator

objective   312

photo-detector

356

Light Source

laser diode   VCL   Super luminin

1712   1714

1716

light generator   1718

Fig. 17

Fig. 17

Fig 19

Fig 20

Fig 21

Fig 22

Fig 23

Fig 24A

Fig 24B

Fig 25

A_1 A_2 A_3

B_1 B_2 B_3

Focus

FES_A

FES_B

324

2602

DISK

EXTRA SPLITTING SURFACE

PERISCOPE
2604

FS ELEMENT

BEAM SHAPER

OB BLOCK
2608

2606

2610

2612

DETECTOR ARRAY B

DETECTOR ARRAY A

FIG. 26   IMPROVED LAYOUT, REQUIRING NO SOB.

FOCUS POSITION OF BEAM B
2704

DETECTOR B

2610

DETECTOR A
2612

FOCUS POSITION OF BEAM A

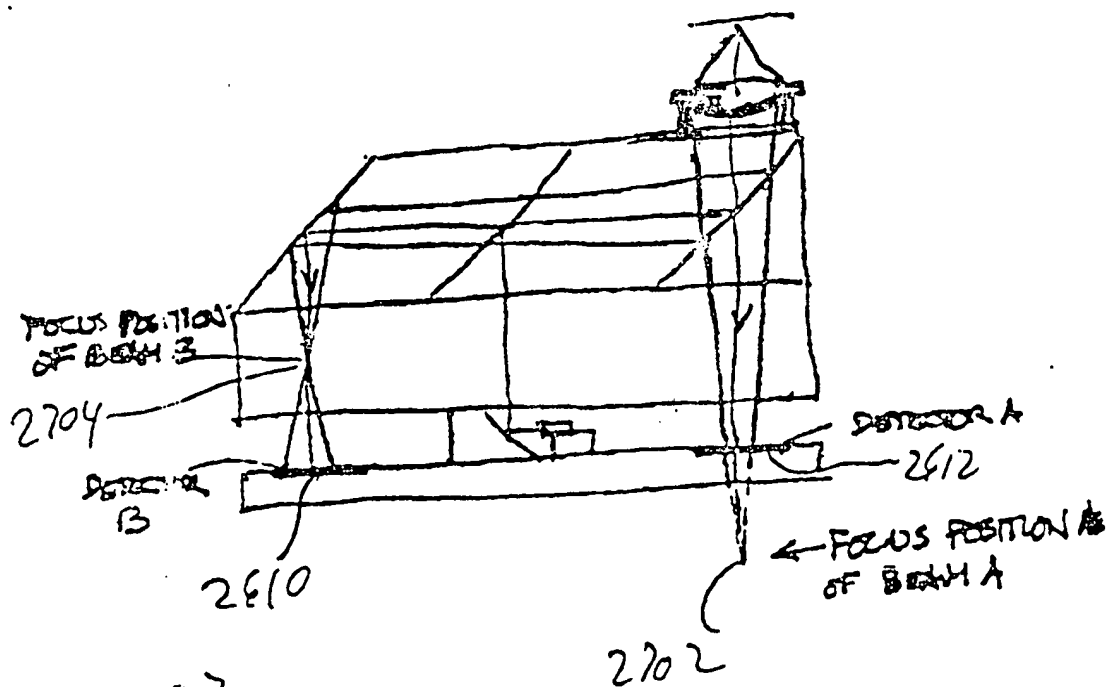2702

FIG. 27   IMPROVED LAYOUT, SHOWING BEAMS IN A DIFFERENTIAL SPOT SIZE MEASUREMENT FOCUS SENSING SCHEME.

2822

2812
2814
2816
2818

2824

Fig 28A

2822

2814
2826
2816
2814

2824

Fig 28B

etch first
beam shape surface

measure shape, position
or normalized parameter

use measurement or
design to select shape
and/or position for second
beam shape surface so as
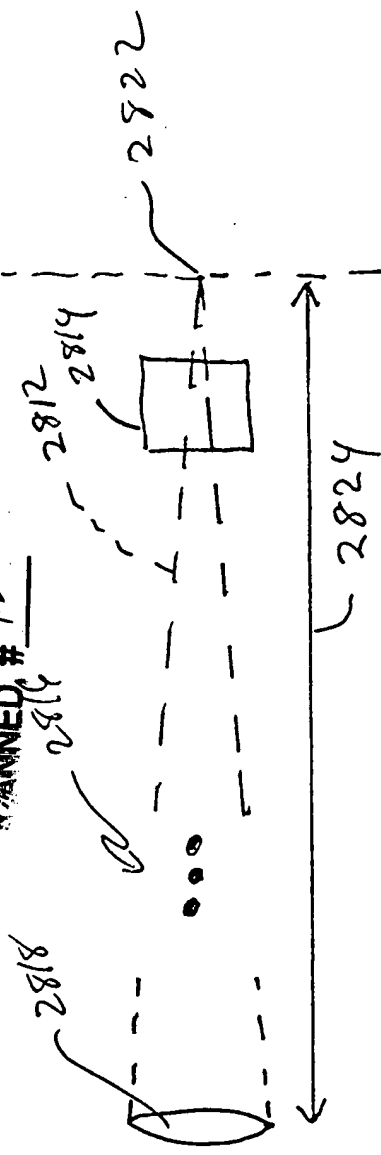to partially compensate for
errors

from second beam shape surface

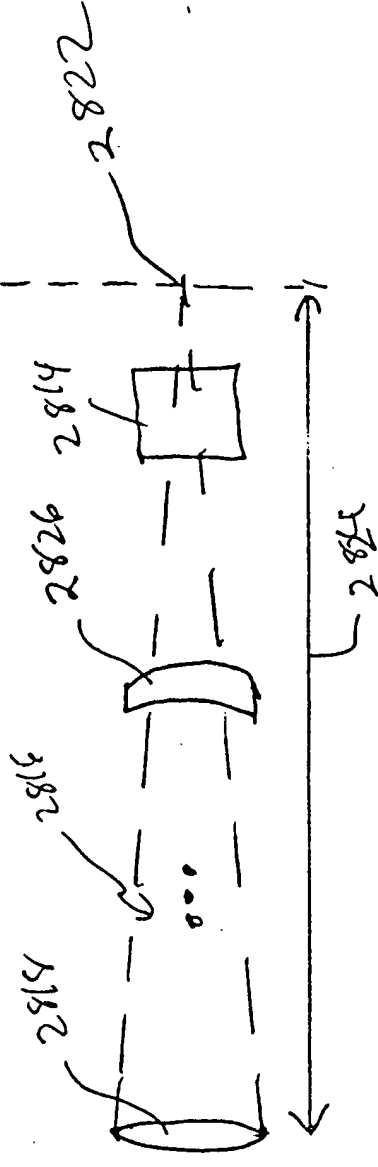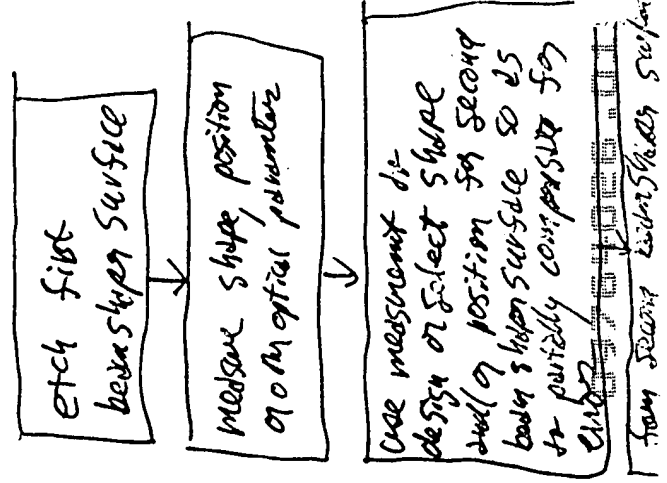**Fig 29**

BEAM SHAPER EQUATION

$C_{20} := -0.39159485$

$C_{02} := 1.93044042$

SURFACE 1

$C_{40} := 0.33426195$

$C_{22} := -10.209495$

$C_{04} := -6.7032532$

$Sag(X, Y) := C_{20} \cdot X^2 + C_{02} \cdot Y^2 + C_{40} \cdot X^4 + C_{22} \cdot X^2 \cdot Y^2 + C_{04} \cdot Y^4$

$Y := 0, 0.01 .. 0.086$

Fig 30A

$X := 0, 0.01 .. 0.086$

Fig. 30B

$C_{20} := -0.052783359$

SURFACE 2

$C_{02} := 0.63270121$

$C_{40} := 0.034762591$

$C_{22} := -0.91998271$

$C_{04} := 1.7905847$

$Sag(X, Y) := C_{20} \cdot X^2 + C_{02} \cdot Y^2 + C_{40} \cdot X^4 + C_{22} \cdot X^2 \cdot Y^2 + C_{04} \cdot Y^4$
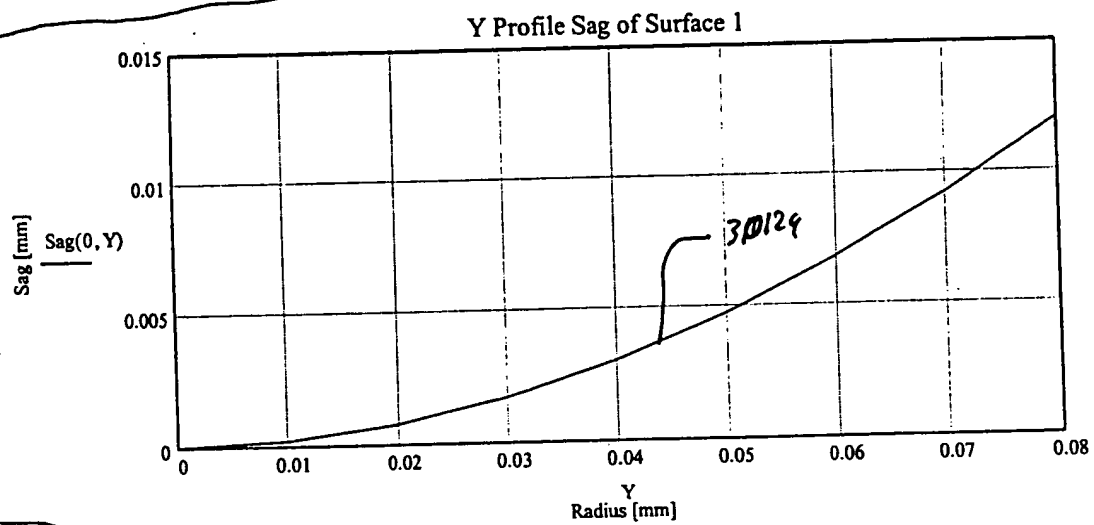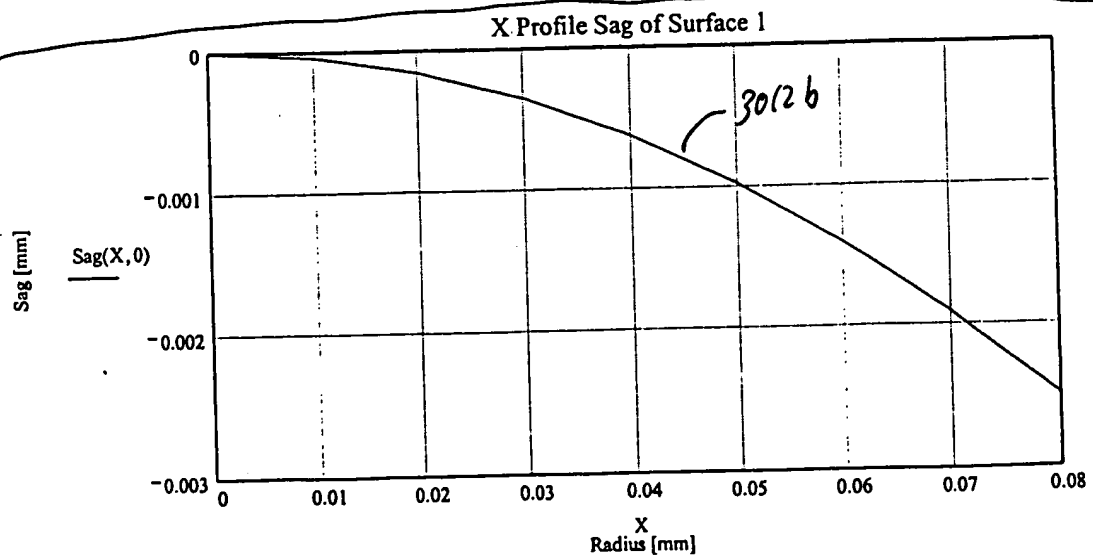
$Y := 0, 0.01 .. 0.130$

Fig 30A
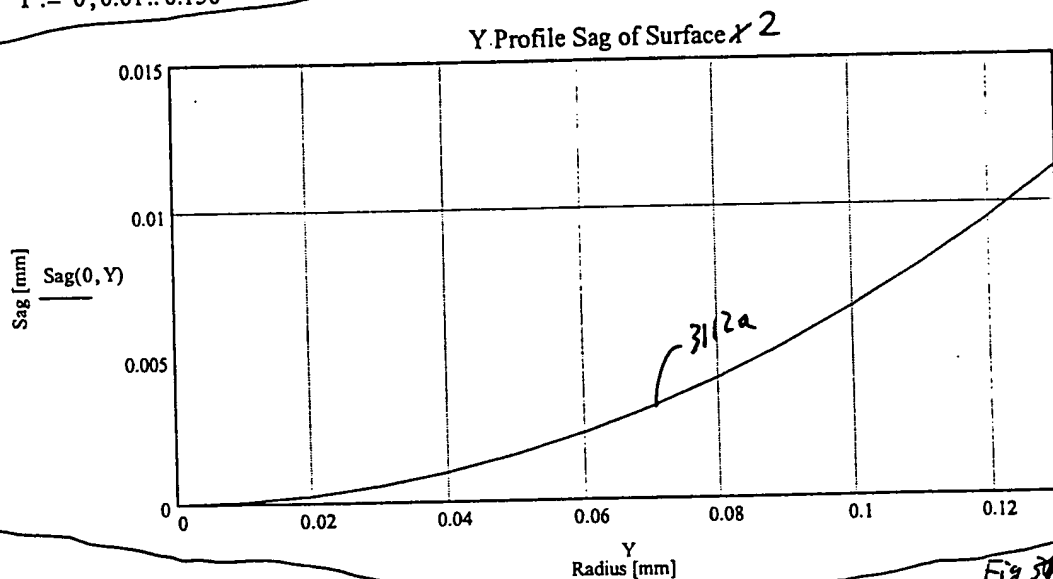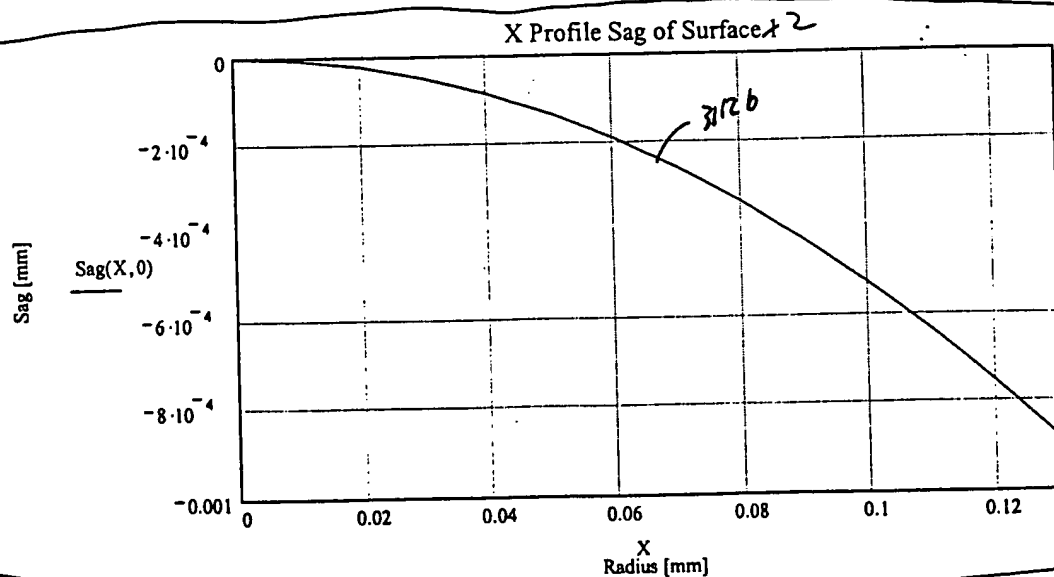
$X := 0, 0.01 .. 0.130$

Fig 30B

Example of Compensating error in the 1st surface by change in the 2nd surface

Fig 32

3212a
3222a

3212c
RAY #1
3222c
RAY #2

3212b
3222b

3224

32226

Ray1 = Ray2

3218
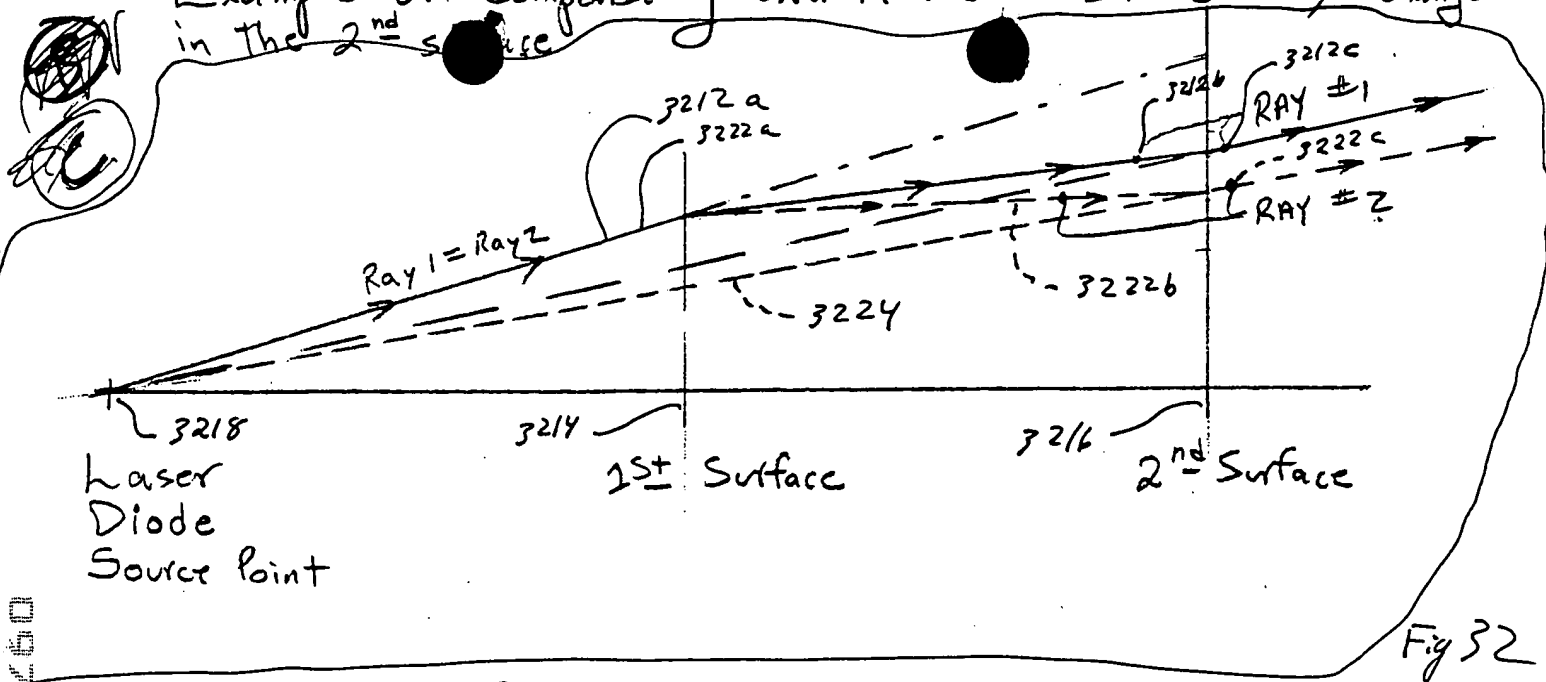Laser
Diode
Source Point

3214
1St Surface

3216
2nd Surface

RAY #1 :   Perfect Refraction at 1st Surface
Perfect Refraction at 2nd Surface
Source point unchanged

RAY #2 :   Imperfect Refraction at 1st Surface.
Ray 2 deviates more than Ray 1.

Compensate with imperfect refraction at 2nd
Surface. Ray 2 deviated such that the

Source point is unchanged